Marines and General Dynamics Amphibious Systems technicians put the Expeditionary Fighting Vehicle through rigorous testing to ensure it will meet the requirements mandated by the Marine Corps. The Marine Corps is slated to purchase a total of 1,013 EFVs at a total cost of about 6.7 billion. The first EFVs are expected to be fielded into the fleet beginning in 2008.

Photo courtesy of General Dynamics Amphibious Systems

By Staff Sgt. Cindy Fisher,
WOODBRIDGE, Va.

Into the Future

Latest version of Marine Corps' amphibious fighting vehicles goes farther, faster

The Marine Corps' newest expeditionary asset is the latest in a series of vehicles that began with the Roebling Alligator in 1932. The new vehicle, formerly known as the Advanced Assault Amphibious Vehicle, was recently renamed the Expeditionary Fighting Vehicle.

The Corps of the 20th century was focused on amphibious operations, but in the 21st century it's expeditionary operations, said Lt. Gen. Emil R. Bedard, the deputy commandant for Plans, Policies, and Operations. Changing the name of the vehicle reflects this cultural change in the Marine Corps' warfighting concepts.

The vehicle is unique to the Marine Corps and has seen a lot of improvements from the original design, said Col. Clayton F. Nans, program manager. It better complements the expeditionary nature of the Corps' current warfighting concepts.

TOOLS OF THE TRADE

The Advanced Amphibious Assault Vehicle has officially been renamed the Expeditionary Fighting Vehicle. The renaming of the vehicle is in keeping with the U.S. Marine Corps' cultural shift from a 20th-Century force defined by amphibious operations to a 21st-Century force focusing on a broadened range of employment concepts and possibilities across a spectrum of conflict. EFV will be one of the principal enablers of the Expeditionary Maneuver Warfare concept and will maneuver and fight as an integral part of the Ground Combat Element and Marine Air Ground Task Force.

Marine Corps Photo

> *The Advanced Assault* **Amphibious Vehicle was renamed the Expeditionary Fighting Vehicle in a ceremony at the Worth Avenue Technology Center in Woodbridge Sept. 10. The christening of the vehicle reflected both Navy and Marine Corps traditions. To honor the past and look to the future, retired Maj. J.T. Rutherford, a veteran of World War II and four-time representative from Texas, and Lance Cpls. Edward J. Castleberry and Kenneth D. Koonce, both veterans of Operation Iraqi Freedom, christened the vehicle.**

Photo by Staff Sgt. Cindy Fisher

Comparing the EFV to the AAV

Capabilities	EFV current	AAV Personnel Model 7A1
Load Capacity	17 Combat Equipped Troops*	21 combat equipped troops
Fuel Capacity	365 Gallons	171 Gallons
Water Speed	20 + Knots	5 Knots
Maximum Forward Land Speed	43 mph**	45 mph
Maximum Forward Sea Speed	9 Knots	7.13 Knots
Maximum Reverse Sea Speed	4.5 Knot	3.9 Knots
Water Cruising Range	63 Nautical Miles at 25 Knots	36.5 Nautical Miles at 5.2 Knots
Land Cruising Range at 25 mph	345 Miles	200 Miles
Armament	30 MM High Velocity Cannon 7.62 Coax, Fully Stabilized Turret Full Solution F/C System, Laser Range Finder, Second Generation FLIR	.50 Caliber Machine Gun MK 19 40 mm Machine Gun
Sea Launch Distance	25 Nautical Miles	2 Nautical Miles
Land Mobility	Equivalent to M1A1 Tank	Limited by Terrain
Vehicle Weight (Unloaded)	75,547 lbs	58,105 lbs
Length/Width/Height	29.85 Feet/12 Feet/ 10.46 Feet	26.8 Feet/12.3 Feet/ 10.9 Feet (w/EAAK)
NBC Protection	NBC Collective Protective System (cooled air for crew and infantry) Ventilated Face Mask for Crew	None
Armor Protection	14.5 mm at 300 Maters Integral Spall Protection Mine Blast Protected Seats	7.62 mm at 300 Meters
C4I	VHF, UHF, SATCOM, GPS, EPLRS, C2PC	VHF, Hand-Held GPS

*** The EFV Load Capacity objective is 18 combat equipped troops. ** The EFV Maximum Forward Land Speed is 45 mph.**

Marine Corps Amphibious Vehicle History*

Alligator This was the Corps' first Assault Amphibian, introduced in 1932. It had a top water speed of 2.5 mph and a land speed of 25 mph.

Crocodile This aluminum vehicle was built by Roebling and introduced to the Corps in 1940. It too had a land speed of 25 mph, but its water speed had increased to 9.4 mph.

Landing Vehicle Tracked 1 In production from 1941 to 1943, this LVT-1 was a direct copy of the Crocodile except it was built with sheet steel. Its land speed was 18 mph and its water speed was 7 mph.

Landing Vehicle Tracked 2 This second generation LVT was developed in 1941 and was in production from 1942 to 1945. It was the basic design for the series of vehicles (LVTA1, LVTA2, LVT4, LVTA4, and LVTA5) used throughout World War II.

Assault Amphibian Vehicle The first prototypes were built in 1979 and production began in 1983. The AAVs include the AAV Personnel Model 7A1, the AAV Command Model 7A1 and the AVV Recovery Model 7A1.

*** Information for history found in the Marine Corps Equipment fact file located on www.usmc.mil.**

The EFV, the MV-22 Osprey and the air cushioned landing craft known as the LCAC, are the future of Marine Corps warfighting, said Lt. Gen. Bedard. "It is about being able to go where we want to go and to be able to go as deep and fast as we need to. (The EFV) is the vehicle that will take us from further out to sea, to deeper into the heart of the enemy."

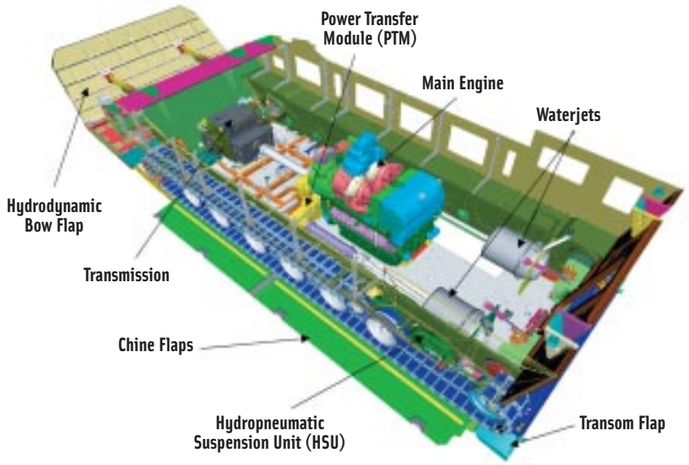
The predecessor to the EFV, the Assault Amphibian Vehicle, has been in service for since 1972, and has been overhauled and upgraded numerous times throughout its career. But a 1988 analysis determined that it didn't meet the Corps' needs in areas such as water and land speed, firepower, armor and system survivability.

"This new vehicle's capabilities must surpass previous amphibious vehicles so the Marine Corps can continue to exploit the sea and the land," said Charles M. Hall, president of General Dynamics Land Systems, the company awarded the contract to develop and demonstrate the vehicle.

The EFV will exceed the requirements set forth by the Marine Corps, providing the capabilities necessary for the 21st century Marine, Hall said.

The vehicle will be three times faster that the AAV in the water and be equal to or better that the M1A1 tank on land. It will have better survivability features than the AAV, and provide command and control capabilities to subordinate, adjacent and higher units. The vehicle will also provide nuclear, biological and chemical protection for its crew and accompanying troops.

Lance Cpls. Edward J. Castleberry and Kenneth D. Koonce, both AAV operators and veterans of Operation Iraqi Freedom, recently had a chance to put the EFV through some of its paces.



< *The Expeditionary Fighting* **Vehicle's combination of offensive firepower, armor, NBC protection and high-speed mobility on land and sea represent major breakthroughs in the ability of Naval and Marine expeditionary forces to avoid an enemy's strengths and avoid its weakness. Graphic courtesy of General Dynamics Amphibious Systems**

Photo courtesy of General Dynamics Amphibious Systems

"It is way better than the one we have right now—a lot more firepower and speed," added Koonce, an AAV crewman based at Marine Corps Base Camp Pendleton, Calif.

"EFV will be one of the most capable and advanced fighting vehicles ever fielded," said Commandant of the Marine Corps Gen. Michael W. Hagee in a letter to the direct reporting program manager of the EFV program.

The EFV program entered the System Development and Demonstration phase of the acquisition cycle in December 2000. Since receiving the SSD contract, General Dynamics Land Systems' subsidiary General Dynamics Amphibious Systems, has been fabricating and testing the second generation of the vehicle. They have completed three and will build a total of nine of the second generation prototypes and one live-fire test vehicle at the Worth Center facility. They will also develop the low-rate initial production design.

Looking ahead, General Dynamics Amphibious Systems expects to enter into operational assessments in fiscal 2005, said Hall. Extensive testing of the reliability, survivability and capabilities of the prototype vehicles will continue throughout the SSD phase.

This is a long-term program and a third generation of the EFV will be developed before it is fielded, said Nans. "We expect to begin fielding the EFV in fiscal year 2008."

Currently, a total of 1,013 are scheduled to be built and delivered through fiscal year 2018—935 EFVP, for personnel, and 78 EFVC, command vehicles. General Dynamics has selected a Prince William County site for the EFV production facility. *M*

^ *The Expeditionary Fighting* **Vehicle prototypes are built at the Worth Avenue Technology Center in Woodbridge, Va. Marines and General Dynamics Amphibious Systems personnel work together to improve the capabilities of the vehicle. It is this joint effort that makes the EFV program a pioneer of joint government/industry teaming.**

Photo courtesy of General Dynamics Amphibious Systems